



STATE OF NEW HAMPSHIRE DEPARTMENT OF SAFETY

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TECHNICAL BULLETIN AND POLICY

Installation of Essential Electrical Systems in Dental Facilities

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Recently the Bureau of Electrical Safety and Licensing became involved with an electrical system being installed at the office of a doctor performing oral and maxillofacial surgery in the State of New Hampshire. It seems there has been a considerable amount of confusion regarding the necessity and types of essential electrical systems required where dental care is being provided. The Bureau Staff have spent many hours researching the matter and hope that the following information will provide a clearer understanding of the issues and electrical requirements.

Electrical installations performed in the State of New Hampshire are required to comply with the National Electrical Code (NFPA 70-2005). Using the National Electrical Code as a reference, we would like to offer the following information related to the essential electrical systems in facilities where dental care is being provided:

- 1.) Article 517 applies to health care facilities. The scope of the Article notes that the provisions apply to electrical construction and installation criteria in health care facilities that provide services to human beings. (Refer 517.1)
- 2.) A health care facility is defined as a building or a portion of a building in which medical, dental, psychiatric, nursing, obstetrical, or surgical care are provided. Health care facilities include, but are not limited to, hospitals, nursing homes, limited care facilities, clinics, medical and dental offices, and ambulatory care centers, whether permanent or movable. (Refer 517.2)
- 3.) Part III of Article 517 covers essential electrical systems. Section 517.25 notes the essential electrical system shall be comprised of a system capable of supplying a limited amount of lighting and power service, which is considered essential for life safety and orderly cessation of procedures during the time normal electrical service is interrupted for any reason. This includes clinics, medical and dental offices, outpatient facilities, nursing homes, limited care facilities, hospitals, and other health care facilities serving patients.
- 4.) Essential systems for hospitals are covered in Sections 517.30 through 517.35. Essential systems for nursing homes are covered in Section 517.40 through 517.44. Essential systems for other health care facilities are covered in 517.45.
 - a. Essential systems covered under Section 517.45 can be supplied by a generator system or a battery. (Refer 517.45 (A))

- b. Where electrical life support equipment is provided, the essential distribution system must be as provided in 517.30 through 517.35 for hospitals. (Refer 517.45 (B))
- c. Where critical care areas are present, the essential distribution system must be as provided in 517.30 through 517.35 for hospitals. (Refer 517.45 (C))
 - i. Critical care areas are those where patients are intended to be subjected to invasive procedures and connected to line-operated, electromedical devices. (Refer 517.2)
- d. Battery systems must be installed in accordance with Article 700 and generator systems must be as described in 517.30 through 517.35.

NFPA 99 is the Standard for Health Care Facilities and is adopted by reference in NFPA 1 as part of the State Fire Code Saf-C 6000. Using NFPA 99-2005 as a reference, we would like to offer the following information:

- 5.) This standard recognizes three levels of essential electrical systems. They are known as Types 1, 2 and 3 with a Type 1 system containing the most stringent requirements. Type 1 or 2 systems are generally required where electrical life support equipment is required or critical care areas are present.
- 6.) Chapter 14 applies to “other health care facilities.”
 - a. The essential systems for these types of facilities are required to conform to a Type 3 system unless life support equipment is required or critical care areas are present and then it would be a Type 1 system. (Refer 14.3.4.2, 14.3.4.2.1 & 14.3.4.2.2)
- 7.) The alternate power source for a Type 3 system can be a generator, battery system, or self-contained battery integral with the equipment. (Refer 4.6.1)
 - a. The system shall supply power for task illumination that is related to the safety of life and that is necessary for the safe cessation of procedures in progress. (Refer 4.6.2.2.2)
 - b. The emergency system shall have an alternate source of power separate and independent from the normal source that will be effective for a minimum of 1½ hours after loss of the normal source. (4.6.3.1.1)

In summary, the above referenced information not only provides some basic guidelines, it mandates that essential electrical systems be provided for areas where dental care is anticipated. The essential system may be very simple for general dental care areas or it may need to be a more involved system for those areas where oral and/or maxillofacial surgeries are taking place. In either case it must provide enough power for task illumination and the operation of any equipment that is necessary for the safe cessation of procedures in progress.

When delineating the level of patient care in a hospital, it is necessary for the Authority Having Jurisdiction to involve the hospital administrator. As the governing body of the facility, the administrator is charged with designating the area in accordance with the type of care anticipated and the definition of patient care areas. In our opinion, when designating the type of care anticipated in a facility where dental procedures are anticipated, it is necessary to involve the doctor in charge of the facility as they will serve as the governing body. If the doctor in charge of the facility can not designate the type of care it may be necessary to request the office of the Board of Dental Examiners to delineate the type of care provided.